SYMMETRIE OF FOOTALIGNMENT AND ANKLE FLEXIBILITY IN FEMALE PATIENTS WITH EHLERS DANLOS SYNDROME – HYPERMOBILE TYPE

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INTRODUCTION

EDS-HT has a large influence on the musculoskeletal system in general. Influences on lower limb, more specific on static foot alignment and dynamic ankle flexibility has not yet been evaluated. Inter subject level in variation of symmetry of static foot alignment and dynamic ankle flexibility, across this clinical population is unknown.

AIM OF THIS STUDY

This study was conducted to assess whether female patients with EDS-HT exhibit a symmetrical pattern at the level of (1) static foot posture and (2) dynamic ankle flexibility.

METHODOLOGY

Subjects :

Twenty-three female EDS-HT patients (age : 44.3±12.3; Beighton Scale 6.3±1.9) and 23 age matched healthy controls (age : 44.7±12.3; Beighton Scale 2.8±1.8) were recruited.

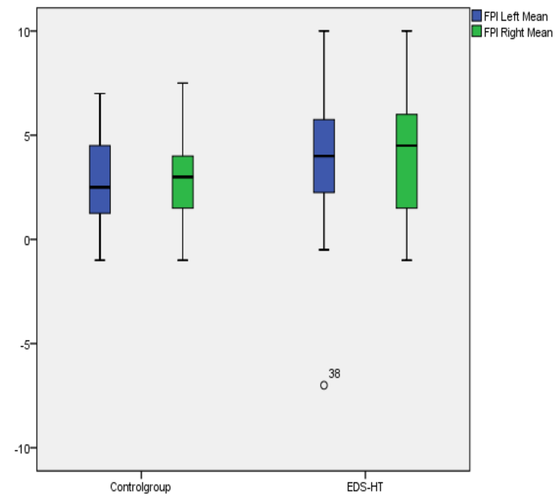
Materials :

- The 'Foot Posture Index 6' (FPI-6) was conducted regarding foot alignment. This test contains 6 items which are scored from 0 (neutral) to -2 (supination) and to +2 (pronation). A sum score will be reported.
- The 'Lunge Test' was carried out for determining ankle dorsi flexion range of motion in a weight-bearing position.

For both test, mean side-to-side differences (expressing symmetry) between both feet are expressed as the 'foot symmetry index' (%FSI).

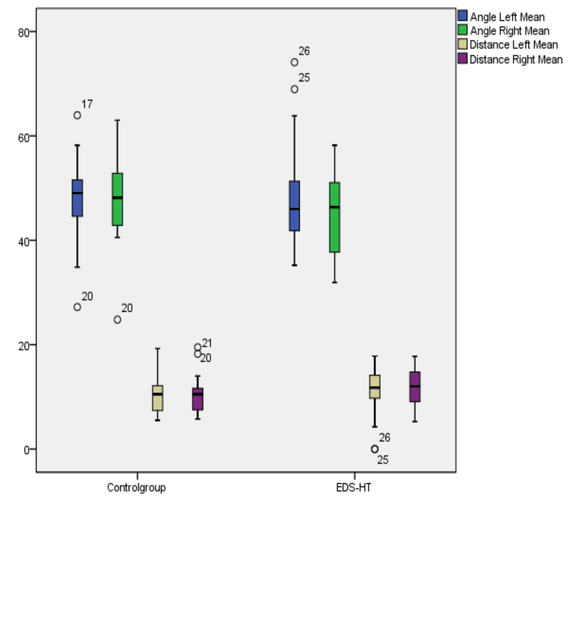
RESULTS

(1) Comparing actual observed FPI-6 scores for the left and right foot in the EDS-HT group, a MEAN(SD) of 3,83(± 3,75) resp. 4,07(± 3,05), was recorded. This was not significantly different from the control FPI-6 scores 2,93(± 2,06) resp. 2,98(± 2,07). As the observed results are situated between 0 and 5 we can conclude that the feet are relatively 'neutral', not having a tendency towards pronated position nor supinated position. The calculated %FSI for the mean FPI-6 was 94% for the EDS-HT group compared to 98% for the control indicating a slightly larger left-right variation for the EDS-HT group.



(2) The calculated %FSI for the Lunge test reported a 107% resp. 99% indicating a more asymmetric dynamic outcome for the EDS-HT group compared to the control group.

The observed Lunge test data showed a significant different mean angle within the EDS-HT group for the left and right ankle joint of 47,8°(± 9,89°) resp. 44,79°(± 7,67°), (p=0.00) . For the control group no clear significant differences were demonstrated (47,93°(± 7,41°) resp. 48,02°(± 7,86°).



CONCLUSION

Between-group analysis showed no significant differences (for static posture and dynamic ankle flexibility) despite their hypermobility background. Female patients with EDS-HT exhibit symmetrical static foot alignment.

For dynamic ankle range of motion a significant asymmetry was observed for the EDS-HT group. As within the dynamic situation a significant asymmetry was observed, further research on kinematics and kinetics for this population should focus on both, left and right limb.

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